Public Weather Services

Vision

To satisfy customer and partner requirements for consistent, timely, and accurate weather services, products, forecasts, and warnings. Some areas of focus include severe and winter weather, air quality, and homeland security support.

Concept of Operations

The Public Weather Services program will collaborate with various NOAA offices and other government agencies, along with non-government offices and academia to create new and improved weather services by:

- ✓ Improving performance metrics for tornado, severe storm, and winter storm warnings
- ✓ Providing public health agencies concerned with air quality output from a combined mesoscale prediction and atmospheric chemistry model
- ✓ Providing Homeland Security support including running air dispersion models like the Hybrid Single Particle Lagrangian Integrated Trajectory Model (HYSPLIT) at NCEP.

Customer and Partner Requirements

- ✓ More accurate forecasts
- ✓ Improved warning lead times
- ✓ Information displayed in new formats including grids, graphics, and GIS
- ✓ Forecast uncertainty using probabilistic techniques
- ✓ More frequent updates
- ✓ Interactive forecast system where customers can produce user-defined, site specific forecast information
- ✓ Computer readable weather summaries
- ✓ Severe weather warnings based on subcounty areas
- ✓ Metropolitan area forecasts for use by commercial, public, TV, radio broadcasters, and emergency managers

Link to Science Technology Infusion Plan

Severe weather research and development are directly tied to GPRA performance measures. No significant improvement in technology is expected to be delivered to the WFOs or the Storm Prediction Center during FY 04.

Air Quality (AQ) research and development is a joint collaboration between the Environmental Protection Agency (EPA) and OAR's Air Resources Laboratory (ARL). This initial capability is a result of refinements to testing in Summer 2003. Improvement in forecasting critical ozone threshold values over day-to-day persistence (approximately 85 percent) is expected.

GPRA Performance Measures

GPRA Goal	1998 – 2002 Baseline	FY 2003 Goal	FY 2004 Goal
Tornado Warning, Accuracy	69%	72%	72%
Tornado Warning, Lead Time	11 minutes	12 minutes	12 minutes
Tornado Warning, False Alarm Ratio	75%	72%	70%

GPRA Goal	1998 – 2002 Baseline	FY 2003 Goal	FY 2004 Goal
Winter Storm Warning, Lead Time	12 hours	13 hours	14 hours
Winter Storm Warning, Accuracy	88%	88%	89%

Product and Service Change

- ✓ New zone forecast product format
- ✓ New Tabular State Forecast product
- ✓ Blowing Snow Advisory and Wind Chill products (Watch/Warning/Advisory) under new product category of Winter Storm Warning (WSW)
- ✓ Air Quality forecasts for national, state, and local agencies
- ✓ Ozone concentration posted to NCEP and EPA sites
- ✓ Quarterly local tests involving Nuclear Regulatory Commission (NRC) and WFOs, to benefit the Department of Homeland Security efforts
- ✓ Enhance GIS capabilities of HYSPLIT output to allow direct multiple model comparisons
- ✓ Model domain covering the Northeast U.S.
- ✓ Terminology and numerical parameters in public products with incorporated and mirrored WMO standardized observational values as the metric for performance evaluation and verification

Milestones by Quarter

1st Quarter

- Insert NWS attribution phrase for the initial issuance of winter weather, and non-precipitation weather Watch/Warning/Advisory. (Milestone met, 1st quarter)
- Issue Blowing Snow and Wind Chill products (Watch/Warning/Advisory) under product category WSW. (Milestone met, 1st quarter)
- Complete Review of 2003 Limited Test with Air Quality Focus Group. (Milestone met, 1st quarter)
- Put Ozone product on "experimental products" web site.(Milestone met, 1st quarter)

- Implement new Zone Forecast product format nationally.(Milestone met, 1st quarter)
- Implement new Tabular State Forecast product nationally.(Milestone met, 1st quarter)
- Implement new all weather hazards preliminary local storm report format. (Milestone met, 1st quarter)

3rd Quarter

- Develop and implement additional Heat Health Watch Warning Systems. (Milestone met, 3rd quarter)
- Develop Severe Weather Gridded Forecast Plan for WFOs and SPC. (Milestone met, 3rd quarter)

4th Quarter

- Consolidate product for significant (non-severe) weather situations.
- Consolidate product for Winter Weather and Non-Precipitation Weather Outlooks.
- Conduct Air Quality Real-Time Testing and Evaluation (RTTE).
- Decide Air Quality Operational Readiness for FY 05.
- Develop Homeland Security product suite so WFOs can access and display critical data sets.

Integrated Requirements

- ✓ Baseline Product Formatters for products specified in NWS Instruction 10-503.
- ✓ Install Short Duration Quality Control Checker Software.
- ✓ Homeland Security product suite to access and display critical data sets in the Watch/Warning/Advisory Application.
- ✓ System for Convective Analysis and Nowcasting.
- ✓ Local storm report application.

Science and Technology Requirements

- ✓ Continue testing and evaluating Eta 12/CMAQ, (the community model for AQ coupled model) for improving surface ozone concentration forecasts.
- ✓ Plan transition to WRF model.
- ✓ Implement model upgrades including changes to short range ensemble forecasts (SREF) and medium range ensemble forecasts (MREF), run an ensemble high resolution window to support Homeland Security and fire weather applications, and improve assimilation and subgrid-scale orographic forcing schemes in mesoscale and global forecast systems.
- ✓ Continue Improvements which will be highly dependent on observations and mesoscale model improvements.

Kimberly Buttrick uses the Interactive Forecast Preparation System (IFPS) Graphical Forecast Editor (GFE) to modify the local digital database at WFO Taunton, Mass.

Outreach

- ✓ Presentations on Watch by County and Short Duration Warning Quality Control at NWA and AMS conventions and the annual National Severe Weather Workshop
- ✓ AMS presentations on Heat Health Watch Warning Systems
- ✓ Continued interactions with AQ focus group to provide feedback to modelers and AQ researchers to correct/improve model performance
- ✓ Presentations on AQ Forecast System at National AQ Workshops and AMS convention
- ✓ Continued interactions with the DoD, Homeland Security, DOE, NRC, and other federal and state agencies involved in homeland security at meetings and workshops
- ✓ Severe Weather Program Leader's Meeting, prior to National Severe Weather Workshop

Dissemination

- ✓ Streamline Public Weather Product Suite

Verification

- ✓ Extend new temperature and Probability of Precipitation (PoP) verification to seven days and a ten-fold increase in verification sites to approximately 1,500
- ✓ Begin verification development of other forecast elements including cloud amount, snow amount, wind speed and direction, and precipitation type
- ✓ Start development of polygon verification for thunderstorms and showers
- ✓ Develop simple grid verification using states' emissions monitoring data for ozone collection by EPA

Regional Initiatives

Central

- ✓ Improve GPRA performance measures by employing best practices
- ✓ Define WFO role with respect to the DoD, Department of Homeland Security, DOE, and the NRC
- ✓ Define WFO role in the air quality program
- ✓ Expand WFO customer outreach to include IFPS/NDFD capabilities and potential utility

Contact Information

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